AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A piezo actuator drive circuit comprising:

a charging means for charging during a predetermined charging period a piezo stack that can be driven by being charged and discharged;

an arithmetic means for calculating a charging amount in which the charging means charges the piezo stack during the charging period; and

a driving control means for comparing the calculated charging amount and a target charging amount and correcting the charging amount during a next charging process according to a difference between the compared charging amounts~~.~~;

wherein a charging current flowing through the piezo stack and a charging voltage applied to the piezo stack are measured during a charging process, the calculated charging amount being an amount of energy that is a result of a time quadrature of a product of the measured current and voltage; and

the arithmetic means integrates the charging current at every integration period variable with the charging voltage to calculate the charging amount.

2. (canceled)

3. (original) The piezo actuator drive circuit according to claim 1, wherein:

the charging means is a multiple switching system;

the charging means includes a first current-carrying path for carrying current from a DC power supply through an inductor to the piezo stack, the first current-carrying path fitted with a switching device for repeating ON and OFF states;

the charging means allows a gradually increasing charging current to flow through the first current-carrying path during an ON period when the switching device is ON;

the charging means further includes a second current-carrying path for carrying current from the inductor through the piezo stack, bypassing the DC power supply and the switching device;

the charging means further allows a gradually decreasing charging current to flow due to the flywheel effect through the second current-carrying path during an OFF period when the switching device is OFF;

the driving control means is adapted to perform ON-OFF control of the switching device with a predetermined ON period (Ton) during the charging period; and

the driving control means is further adapted to correct the length of the ON period according to the difference between the compared amounts.

4. (original) The piezo actuator drive circuit according to claim 3, wherein the predetermined ON period is based on the target charging amount.

5. (original) The piezo actuator drive circuit according to claim 3, further comprising:

a current sensing means for sensing the charging current flowing through the

piezo stack when the switching device changes over from an ON state to an OFF state,

wherein the driving control means is further adapted to cause the ON period of at least the first charging process during the charging period to end when the sensed charging current reaches a preset current value, and

the driving control means is further adapted to correct the preset current value according to the difference between the compared amounts during the next charging process.

6. (new) The piezo actuator drive circuit according to claim 1, wherein the integration period is shorter than the charging period.

7. (new) The piezo actuator drive circuit according to claim 1, wherein the integration period is made shorter as the charging voltage increases.

8. (new) A method comprising:

charging during a predetermined charging period a piezo stack that can be driven by being charged and discharged;

calculating a charging amount in which the piezo stack is charged during the charging period;

comparing the calculated charging amount and a target charging amount; and

correcting the charging amount during a next charging process according to a difference between the compared charging amounts;

wherein a charging current flowing through the piezo stack and a charging voltage applied to the piezo stack are measured during a charging process, the calculated charging amount being an amount of energy that is a result of a time quadrature of a product of the measured current and voltage; and

the charging current is integrated at every integration period variable with the charging voltage to calculate the charging amount.

9. (new) The method according to claim 8, further comprising:

carrying current in a first current-carrying path from a DC power supply through an inductor to the piezo stack, the first current-carrying path being fitted with a switching device for repeating ON and OFF states;

allowing a gradually increasing charging current to flow through the first current-carrying path during an ON period when the switching device is ON;

carrying current in a second current-carrying path from the inductor through the piezo stack, bypassing the DC power supply and the switching device;

allowing a gradually decreasing charging current to flow due to the flywheel effect through the second current-carrying path during an OFF period when the switching device is OFF;

performing ON-OFF control of the switching device with a predetermined ON period (Ton) during the charging period; and

correcting the length of the ON period according to the difference between the compared amounts.

10. (new) The method according to claim 9, wherein the predetermined ON period is based on the target charging amount.

11. (new) The method according to claim 9, further comprising:

sensing the charging current flowing through the piezo stack when the switching device changes over from an ON state to an OFF state;

causing the ON period of at least the first charging process during the charging period to end when the sensed charging current reaches a preset current value; and

correcting the preset current value according to the difference between the compared amounts during the next charging process.

12. (new) The method according to claim 8, wherein the integration period is shorter than the charging period.

13. (new) The method according to claim 8, wherein the integration period is made shorter as the charging voltage increases.